FAIRVIEW WATER DISTRICT (PWS 6210006)
SOURCE WATER ASSESSMENT FINAL REPORT

June 7, 2002

State of Idaho
Department of Environmental Quality

Executive Summary

Under the Safe Drinking Water Act Amendments of 1996, all states are required by the U.S. Environmental Protection Agency (EPA) to assess every source of public drinking water for its relative sensitivity to contaminants regulated by the act. This assessment is based on a land use inventory of the designated assessment area and sensitivity factors associated with the springs, wells, and aquifer characteristics.

This report, *Source Water Assessment for Fairview Water District, Preston, Idaho*, describes the public drinking water system, the boundaries of the zones of water contribution, and the associated potential contaminant sources located within these boundaries. This assessment should be used as a planning tool, taken into account with local knowledge and concerns, to develop and implement appropriate protection measures for this source. **The results should <u>not be</u> used as an absolute measure of risk and they should <u>not be</u> used to undermine public confidence in the water system.**

The Fairview Water District (PWS #6210006) drinking water system consists of two wells, two springs, and two storage reservoirs in the Cache Valley near the City of Franklin. The springs are the primary source for the Fairview Water system. The wells are used as backup sources. They discharge directly into a 190,000 gallon buried concrete storage reservoir or a second aboveground 130,000-gallon steel tank. The wells are located about 1.5 miles east of Highway 91and 3 miles north of Franklin, Idaho. The springs are located in a more isolated area and are about five miles northeast of the wells (Figure 1). The springs are connected to the storage reservoirs by six-inch main steel water lines. The spring water is disinfected near the source before it is conveyed to the storage reservoirs. Based upon sampling completed in 2001, both springs were determined to be ground water sources. The Fairview Water District currently serves 1,250 persons through 231 connections.

The potential contaminant sources within the delineation capture zones vary for each well and the springs. With the springs located in an isolated area, they have no contaminant sources but they both have numerous surface water corridors present in the delineations. For Well #1, the potential contaminant sources include dairies, underground storage tanks (USTs), leaking underground storage tanks (LUSTs), Cub River, Maple Creek, a wastewater land application (WLAP) site, and a gravel pit. Also found were sites regulated under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA). A Group 1 Site (site that show elevated levels of contaminants and is not within the priority one areas) also falls within the capture zone for Well #1. Additionally, Highway 91 and a railroad are transportation corridors that cross the delineations. If an accidental spill occurred from any of these corridors, inorganic chemicals, volatile organic chemicals, synthetic organic chemicals, or microbial contaminants could be added to the aquifer system. For Well #2, the potential contaminant sources include septic tanks, a gravel pit, and two drainage ditches (Tables 1-4).

For the assessment, a review of laboratory tests was conducted using the Idaho Drinking Water Information Management System (DWIMS) and the State Drinking Water Information System (SDWIS). Since October 1992 total coliform bacteria have been detected five different times in the distribution system. The inorganic chemicals arsenic, chromium, fluoride, nitrate, and sodium have been detected in the drinking water, but below the maximum contaminant level (MCL) for each chemical. In December 1993, arsenic was detected in Well # 2 at a concentration of 9 micrograms per liter (µg/L), Well # 1 had concentrations of 13 µg/L (1996), while the springs had concentrations of 6 µg/L (1998). These levels are in the range of the recently lowered MCL of 10 µg/L. In October 2001, the EPA lowered the arsenic MCL to 10 µg/L, giving systems until 2006 to comply with the new standard. No volatile organic chemicals or synthetic organic chemicals have been detected in the drinking water.

Final susceptibility scores for Fairview Water District were derived from equally weighting system construction scores, hydrologic sensitivity scores, and potential contaminant/land use scores. Therefore, a low rating in one or two categories coupled with a higher rating in other categories results in a final rating of low, moderate, or high susceptibility. With the potential contaminants associated with most urban and heavily agricultural areas, the best score a well can get is moderate. Potential contaminants are divided into four categories, inorganic contaminants (IOCs, i.e. nitrates, arsenic), volatile organic contaminants (VOCs, i.e. petroleum products), synthetic organic contaminants (SOCs, i.e. pesticides), and microbial contaminants (i.e. bacteria). As different wells can be subject to various contamination settings, separate scores are given for each type of contaminant.

In terms of total susceptibility, Well # 1 rated moderate for IOCs, VOCs, SOCs, and microbials. System construction scores were low and hydrologic sensitivity was moderate. Potential contaminant inventory and land use scores were high for IOCs, moderate for VOCs, SOCs, and low for microbial contaminants. Well # 2 rated moderate for IOCs, VOCs, SOCs, and microbials. System construction scores and hydrologic sensitivity scores were moderate. Potential contaminant inventory and land use scores were low for IOCs, VOCs, SOCs, and for microbial contaminants.

Spring # 1 Big and Spring #2 Little rated moderate for IOCs, VOCs, SOCs, and microbials. The system construction scores were moderate. Potential contaminant inventory and land use scores were moderate for IOCs, VOCs, SOCs, and microbial contaminants.

This assessment should be used as a basis for determining appropriate new protection measures or re-evaluating existing protection efforts. No matter what ranking a source receives, protection is always important. Whether the source is currently located in a “pristine” area or an area with numerous industrial and/or agricultural land uses that require surveillance, the way to ensure good water quality in the future is to act now to protect valuable water supply resources. If the system should need to expand in the future, new well sites should be located in areas with as few potential sources of contamination as possible, and the site should be reserved and protected for this specific use.

An effective drinking water protection program is tailored to the particular local drinking water protection area. A community with a fully developed drinking water protection program will incorporate many strategies. For the Fairview Water District, drinking water protection activities should continue efforts aimed at keeping the distribution system free of microbial contaminants that may affect the drinking water quality. Additionally, the system may need to investigate engineering controls and be proactive for the control of arsenic levels. The system should also focus on correcting any deficiencies outlined in the sanitary survey (an inspection conducted every five years with the purpose of determining the physical condition of a water system's components and its capacity). Land uses within most of the source water assessment area are outside the direct jurisdiction of Fairview Water District. Therefore, partnerships with state and local agencies, industrial, and commercial groups should be established to ensure future land uses are protective of ground water quality.

Due to the time involved with the movement of ground water, drinking water protection activities should be aimed at long-term management strategies even though these strategies may not yield results in the near term. A strong public education program should be a primary focus of any drinking water protection plan. Public education topics could include proper lawn and garden care practices, household hazardous waste disposal methods, proper care and maintenance of septic systems, and the importance of water conservation to name but a few. There are multiple resources available to help communities implement protection programs, including the Drinking Water Academy of the EPA. Drinking water protection activities for agriculture should be coordinated with the Idaho State Department of Agriculture, the Franklin County Soil and Water Conservation District, and the Natural Resources Conservation Service.

A system must incorporate a variety of strategies in order to develop a comprehensive drinking water protection plan, be they regulatory in nature (i.e. zoning, permitting) or non-regulatory in nature (i.e. good housekeeping, public education, specific best management practices). For assistance in developing protection strategies please contact the Pocatello Regional Office of the Idaho Department of Environmental Quality or the Idaho Rural Water Association.

SOURCE WATER ASSESSMENT FOR FAIRVIEW WATER DISTRICT, PRESTON, IDAHO

Section 1. Introduction - Basis for Assessment

The following sections contain information necessary to understand how and why this assessment was conducted. **It is important to review this information to understand what the ranking of this assessment means.** Maps showing the delineated source water assessment area and the inventory of significant potential sources of contamination identified within that area are included. The list of significant potential contaminant source categories and their rankings used to develop the assessment also is included.

Level of Accuracy and Purpose of the Assessment

The Idaho Department of Environmental Quality (DEQ) is required by the U.S. Environmental Protection Agency (EPA) to assess over 2,900 public drinking water sources in Idaho for their relative susceptibility to contaminants regulated by the Safe Drinking Water Act. This assessment is based on a land use inventory of the delineated assessment area, sensitivity factors associated with the wells, and aquifer characteristics. All assessments must be completed by May of 2003. The resources and time available to accomplish assessments are limited. Therefore, an in-depth, site-specific investigation to identify each significant potential source of contamination for every public water system is not possible. **This assessment should be used as a planning tool, taken into account with local knowledge and concerns, to develop and implement appropriate protection measures for this source. The results should <u>not be</u> used as an absolute measure of risk and they should <u>not be</u> used to undermine public confidence in the water system.**

The ultimate goal of the assessment is to provide data to local communities to develop a protection strategy for their drinking water supply system. DEQ recognizes that pollution prevention activities generally require less time and money to implement than treatment of a public water supply system once it has been contaminated. DEQ encourages communities to balance resource protection with economic growth and development. The decision as to the amount and types of information necessary to develop a drinking water protection program should be determined by the local community based on its own needs and limitations. Wellhead or drinking water protection is one facet of a comprehensive growth plan, and it can complement ongoing local planning efforts.

Section 2. Conducting the Assessment

General Description of the Source Water Quality

The Fairview Water District (PWS #6210006) is a community drinking water system located in Franklin County (Figure 1). The system consists of two wells and two springs that provides drinking water to approximately 1,250 persons through 231 connections. The system has two storage reservoirs. The first is a 190,000-gallon cement reservoir that is buried near the springs. The second is a 130,000-gallon aboveground steel tank. The springs are the primary water source with the wells providing supplemental backup. The storage reservoirs are connected to the springs by a 6-inch steel main water line.

Since October 1992 total coliform bacteria have been detected five different times in the distribution system. The inorganic chemicals (IOCs) arsenic, chromium, fluoride, nitrate, and sodium have been detected in the drinking water, but below the maximum contaminant level (MCL) for each chemical. In December 1993, arsenic was detected in Well # 2 at a concentration of 9 micrograms per liter (µg/L), Well # 1 had concentrations of 13 µg/L (1996), while the springs had concentrations of 6 µg/L (1998). These levels are in the range of the recently lowered MCL of 10 µg/L. In October 2001, the EPA lowered the arsenic MCL to 10 µg/L, giving systems until 2006 to comply with the new standard. No volatile organic chemicals (VOCs) or synthetic organic chemicals (SOCs) have been detected in the drinking water.

Defining the Zones of Contribution – Delineation

The delineation process establishes the physical area around a well that will become the focal point of the assessment. The process includes mapping the boundaries of the zone of contribution into time-of-travel (TOT) zones (zones indicating the number of years necessary for a particle of water to reach a pumping well) for water in the aquifer. Washington Group International (WGI) was contracted by DEQ to define the public water system's zones of contribution. WGI used a conceptual computer model approved by the EPA in determining the 3-year (Zone 1B), 6-year (Zone 2), and 10-year (Zone 3) TOT for water associated with the Cache Valley hydrologic province in the vicinity of the Fairview Water District. The computer model used site specific data, assimilated by WGI from a variety of sources including operator records, well logs (when available) and hydrogeologic reports. A summary of the hydrogeologic information from the WGI is provided below.

Hydrogeologic Conceptual Model

The Bear River originates in the Uinta Mountains of northern Utah and winds its way through over 500 miles of Wyoming, Idaho, and Utah to terminate in a freshwater bay of the Great Salt Lake just 90 miles west of its source (Dion, 1969, p. 6). The Bear River enters Idaho near Border, Wyoming and flows along the north edge of the Bear River Plateau. Flowing north through the Bear River – Dingle Swamp hydrologic province, it passes into the Soda Springs hydrologic province east of the Bear River Range. Upon entering the Gem Valley – Gentile Valley hydrologic province, it swings south. Now west of the Bear River Range, the river passes through the Oneida Narrows into the Cache Valley hydrologic province. Over most of its course through Idaho, the Bear River is gaining and in direct hydraulic communication with the major aquifer systems of the four hydrologic provinces. The exception is a small reach between the cities of Alexander and Grace where it is generally losing and is perched over the regional fractured basalt aquifer (Dion, 1969, p. 30).

Ground water in the Bear River Basin is found in Holocene alluvium, Pleistocene basalt, and rocks of the "Pliocene (?)" [sic] Salt Lake Formation, pre-Tertiary undifferentiated bedrock, and possibly the "Eocene (?)" [sic] Wasatch Formation (Dion, 1969, pp. 15 and 16). Rocks of the Salt Lake Formation, which include freshwater limestone, tuffaceous sandstone, rhyolite tuff and poorly-consolidated conglomerate, outcrop along the major valley margins and may underlie the valley-fill alluvium (Dion, 1969, pp. 16 and 17). Many of the wells drilled into this formation do not yield water. The few wells that do produce water yield as much as 1,800 gallons per minute (gal/min) from beds of sandstone and conglomerate.

The Wasatch Formation is restricted to the Bear Lake Plateau and small areas northwest of Bear Lake (Dion, 1969, p. 17). The formation is composed largely of tightly cemented conglomerate and sandstone with smaller amounts of shale, limestone, and tuff. The primary pore space is typically impermeable. Water movement may occur through joints and fractures or more permeable zones that are thought to exist along the relatively flat-lying formation (Dion, 1969, p. 17). Springs occur at the margins of the formation.

Precipitation in the basin ranges from 10 inches per year (in./yr) on the floor of Bear Lake Valley to over 45 in./yr on the Bear River Range (Dion, 1969, pp. VII and 11). Applied over the entire basin, precipitation amounts to approximately 2.3 million acre-feet annually. Precipitation is also the principal source of recharge to the basin's aquifers in conjunction with spring snowmelt and runoff, irrigation seepage, and canal losses.

Natural ground water discharge is by flow to the Bear River, springs, seeps along river banks, and evapotranspiration in large marshy areas (Dion, 1969, p. VIII). Some discharge may also occur by way of underflow to the Portneuf River drainage through basalt flows at Tenmile pass and near Soda Point.

Ground water is obtained from both springs and wells in the Bear River Basin. Hundreds of springs issue primarily from fractures and solution openings in the bedrock on the margins of the basin (Dion, 1969, p. 47). Water production from wells in the four hydrologic provinces is primarily from alluvial and basalt aquifers; however, some wells tap conglomerate, sandstone, limestone and shale aquifers of the Salt Lake and possibly the Wasatch formations (Dion, 1969, p.VII).

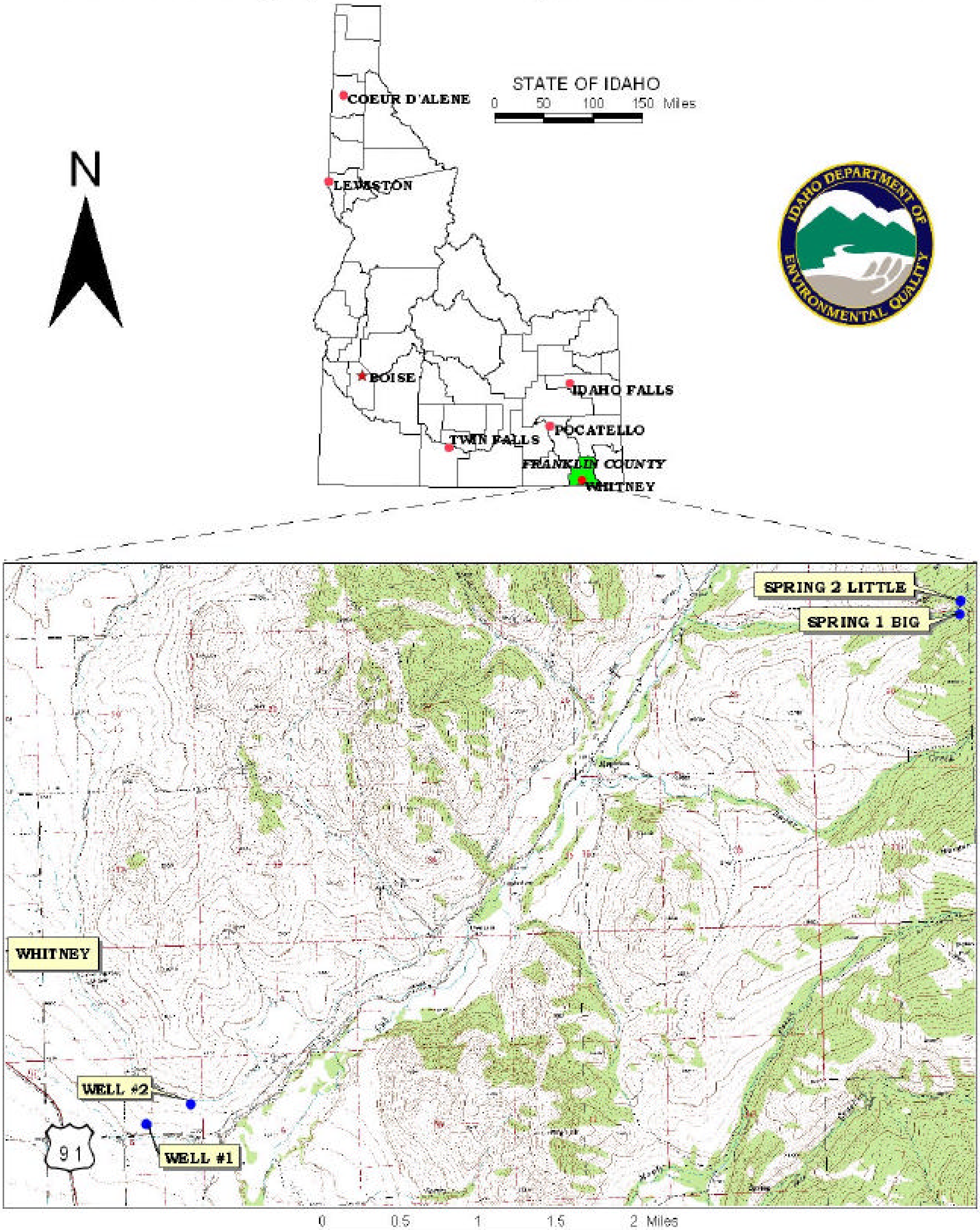
Cache Valley Hydrologic Province

Cache Valley is a complex graben covering about 310 square miles in southeastern Idaho and 350 square miles in northeastern Utah. It was once a bay of ancient Lake Bonneville resulting in lake terraces along the margins of the valley (Dion, 1969, p. 7). The related topographic features and deposits of ancient lakes affect the occurrence and movement of ground water (Bjorklund and McGreevy, 1971, p. 14).

The valley floor consists of unconsolidated valley-fill sediments of Quaternary age from the former Lake Bonneville and older lakes and streams, as well as younger alluvium. The sediments consist of silts and gravel of the Alpine and Bonneville formations, overlain by interfingering beds of gravel, sand, silt, and clay. Alluvial fan and landslide deposits are exposed along the margins of the valley. There is a general coarsening of sediments from lower elevations in the center of the valley to the higher elevations at the valley margins (Johnson et al., 1996). The surrounding mountain ranges consist of highly faulted Tertiary Salt Lake and "Wasatch (?)" [sic] formation rocks and Permian through Precambrian rocks (Bjorklund and McGreevy, 1971, Plate 1).

The major aquifers are composed of sand and gravel in fans and deltas; interbedded layers of lake-bottom clays and silts confine the aquifers and cause artesian conditions throughout the valley (Bjorklund and McGreevy, 1971, p.14). Deltas and fans from streams entering the valley generally contain a high percentage of gravel and are considered good aquifers (Bjorklund and McGreevy, 1971, p.15). The exception is the Bear River delta, which is composed mostly of fine sand and silt and contains poor aquifers.

FIGURE 1. Geographic Location of Fairview Water District



Aquifer recharge occurs mainly by infiltration of water from precipitation, streams, canals, ditches, and irrigated lands and by subsurface inflow. A large volume of recharge originates in the Bear River Range where 30 to 50 inches of precipitation fall in most years. Average annual precipitation on the valley floor is approximately 15.5 inches (Bjorklund and McGreevy, 1971, pp. 5 and 18). The principal recharge area is along the margins of the valley that are underlain by permeable unconsolidated materials (Bjorklund and McGreevy, 1971, p. 18). In the lower parts of the valley, some water is recharged to shallow unconfined aquifers, but infiltrated water does not reach the confined aquifers in Idaho because of the upward artesian gradient.

Ground water is discharged by springs, seeps, drains, evapotranspiration, and wells. Many streams in Cache Valley originate at springs and seeps within the valley, and other streams gain in flow as they traverse the valley floor. Potentiometric levels range in elevation from about 4,850 feet mean sea level (msl) near Oxford to about 4,500 feet near the Idaho-Utah border. Generally, the ground water flow direction is locally toward the Bear River and regionally south toward Utah. The Bear River in the Idaho part of Cache Valley is gaining (Bjorklund and McGreevy, 1971, p. 19).

Artesian conditions exist in a large part of the lower valley. Heads of most flowing wells are less than 40 feet above land surface, but heads as high as 62 feet above land surface have been measured (Bjorklund and McGreevy, 1971, p. 22). Water table conditions exist near the edge of the valley beneath alluvial slopes and benchlands. The depth to water is as much as 300 feet below ground surface (bgs) along the margin of the upper valley.

Most wells in the valley produce water from the unconsolidated basin deposits. Driller's logs indicate that the alluvium may contain several aquifers separated by silt and clay (Dion, 1969, p. 19). The most productive aquifer systems in the Idaho part of Cache Valley are in the area of Weston Creek and in fan deposits along the north and west sides of the valley. Aquifer tests near Weston indicate an average transmissivity of about 30,000 ft^2/day (Bjorklund and McGreevy, 1971, p. 2). Transmissivity values of 5,000 and 40,000 ft^2/day were reported from two tests conducted north of Clifton, Idaho (Johnson et al., 1996, p. 21). For a computer-aided analysis of the resulting test data, the contact at the valley margin was conceptualized as a low- permeability boundary and simulated as a no-flow boundary (Johnson et al., 1996, p .11). The Fairview Water District wells addressed in this report are located within a couple of miles of the bedrock/valley-fill contact or other near-surface geologic contact.

The delineated source water assessment areas for the Fairview Water District wells were performed using the calculated fixed-radius method. The calculated fixed radius method is used when site-specific data is not available. It uses generalized, existing, hydrogeologic data from the major aquifer types in Idaho, and data from the well pump. The calculated fixed radii for the 3-, 6-, and 10-year capture zones were calculated using equations presented by Keely and Tsang (1983) for the velocity distribution surrounding a pumping well.

The two wells are completed or assumed completed in either unconsolidated alluvium or conglomerate based on well location and completion depths. The hydraulic conductivity (the capacity of a rock to transmit water) of 14 feet per day (ft/day) was used for the wells. The effective porosities (0.3 and 0.2) and uniform hydraulic gradients (0.01 and 0.003) are the default values presented in Table F-3 of the Idaho Wellhead Protection Plan for unconsolidated alluvium and mixed volcanic and sedimentary rocks primarily sedimentary rocks, respectively (IDEQ, 1997, p. F-6). The aquifer thickness is the saturated open interval of each well. The aquifer thickness for both wells is 50 feet.

For Well #1, fixed radius calculations resulted in radial distances of approximately 4275 feet for the 3-year TOT, 8415 feet for the 6-year TOT and 13890 feet for the 10-year TOT (Figure 2). For Well #2, fixed radius calculations resulted in radial distances of approximately 920 feet for the 3-year TOT, 1420 feet for the 6-year TOT and 1960 feet for the 10-year TOT (Figure 2).

Delineation of the wellhead protection area for a spring involves special consideration. Hydrogeologic setting is foremost among the factors that control the shape and extent of the capture zone. A spring resulting from the presence of a high permeability fracture extending to great depth will have a much different capture zone than a depression spring formed where the ground surface intersects the water table in a unconsolidated aquifer. The latter can be reasonably modeled as either a well or an internal constant head boundary. In many cases, however, the methods commonly used to delineate protection areas for water-supply wells are not applicable (Jensen et al., 1997). Application of the refined method using WhAEM (Kraemer et al., 2000), for instance, may not be appropriate for a fracture or tubular spring producing from an aquifer that displays a high degree of heterogeneity and anisotropy.

Techniques that are most applicable to the springs within the scope of this report are the topographic, refined, and calculated fixed-radius methods. Hydrogeologic mapping techniques have been useful in characterizing the hydrogeologic setting and the zone of contribution to springs (Jensen et al., 1997, pp. 6-7). Other techniques such as tracer and isotope studies, potentiometric surface mapping, geochemical characterization, and geophysical survey interpretation require data that are not available without additional fieldwork.

The topographic method was used to delineate capture zones for the Fairview Water District springs. The topographic method was chosen for springs that 1) are located within relatively small drainage basins with easily definable divides, 2) have an average annual discharge that can be reasonably supplied by an average annual precipitation in the drainage, and 3) have characteristics of a shallow system such as seasonal variations in discharge and temperature.

The assumption was made that ground water divides, which represent hydrologic boundaries to shallow ground water flow, are coincident with the topographic divides. Perennial streams or other surface water bodies that may infer the presence of hydrologic boundaries were identified. Surface geologic maps were also used to identify low permeability lithologic units that may form ground water flow boundaries and to infer the extent of lithologic units that provide water to springs. Calculating the amount of recharge needed to produce the average reported spring discharge checked the reasonableness of a topographic delineation. The required recharge was then compared to the average yearly precipitation in the area surrounding the spring. The actual data used by WGI in determining the source water assessment delineation areas are available from DEQ upon request.

Identifying Potential Sources of Contamination

A potential source of contamination is defined as any facility or activity that stores, uses, or produces, as a product or by-product, the contaminants regulated under the Safe Drinking Water Act. Furthermore, these sources have a sufficient likelihood of releasing such contaminants into the environment at levels that could pose a concern relative to drinking water sources. The goal of the inventory process is to locate and describe those facilities, land uses, and environmental conditions that are potential sources of ground water contamination. Field surveys conducted by DEQ and reviews of available databases identified potential contaminant sources within the delineation areas. These sources include Highway 91, Foster Creek, Spring Hollow Creek, Cub River, and a railroad (Appendix A, Tables 1 through 4). Some of the sources include underground storage tanks (USTs), leaking underground storage tanks (LUSTs), sites regulated under the Comprehensive Environmental Response Compensation Liability Act (CERCLA), and a wastewater land application (WLAP) site.

It is important to understand that a release may never occur from a potential source of contamination provided they are using best management practices. Many potential sources of contamination are regulated at the federal level, state level, or both to reduce the risk of release. Therefore, when a business, facility, or property is identified as a potential contaminant source, this should not be interpreted to mean that this business, facility, or property is in violation of any local, state, or federal environmental law or regulation. What it does mean is that the potential for contamination exists due to the nature of the business, industry, or operation. There are a number of methods that water systems can use to work cooperatively with potential sources of contamination, including educational visits and inspections of stored materials. Many owners of such facilities may not even be aware that they are located near a public water supply well.

Contaminant Source Inventory Process

A two-phased contaminant inventory of the study area was conducted in April and May of 2002. The first phase involved identifying and documented potential contaminant sources within the Fairview Water District source water assessment area through the use of computer databases and Geographic Information System (GIS) maps developed by DEQ. The second, or enhanced, phase of the contaminant inventory involved contacting the operator to validate the sources identified in phase one and to add any additional potential sources in the area. This task was undertaken with the assistance of Mr. Tracey Bodily. Maps with well and spring locations, delineated areas and potential contaminant sources are provided with this report in Appendix A (Figures 2, 3, 4, and 5). The potential contaminant sources are listed in Table 1-4 (Appendix A).

Section 3. Susceptibility Analyses

The susceptibility of the wells to contamination was ranked as high, moderate, or low risk according to the following considerations: hydrologic characteristics, physical integrity of the wells, land use characteristics, and potentially significant contaminant sources. The susceptibility of the springs was ranked as high, moderate, or low risk according to the system construction around the source, the land use characteristics, and the potentially significant contaminant sources. The susceptibility rankings are specific to a particular potential contaminant or category of contaminants. Therefore, a high susceptibility rating relative to one potential contaminant does not mean that the water system is at the same risk for all other potential contaminants.

The relative ranking that is derived for the well or spring is a qualitative, screening-level step that, in many cases, uses generalized assumptions and best professional judgement. Appendix B contains the susceptibility analysis worksheets. The following summaries describe the rationale for the susceptibility ranking.

Hydrologic Sensitivity

The hydrologic sensitivity of a well is dependent upon four factors: These factors are surface soil composition, the material in the vadose zone (between the land surface and the water table), the depth to first ground water, and the presence of a 50-foot thick fine-grained zone (aquitard) above the producing zone of the well. Slowly draining soils such as silt and clay typically are more protective of ground water than coarse-grained soils such as sand and gravel. Similarly, fine-grained sediments in the subsurface and a water depth of more than 300 feet protect the ground water from contamination.

In this case, Well #1 and Well #2 have a moderate hydrologic sensitivity rating (Table 5). This rating is based upon poor to moderate drained soil classes as defined by the National Resource Conservation Service (NRCS). Depth to first ground water is less than 300 feet and the available well logs do not show the presence of sufficient low permeability layers.

Well Construction

Well or spring source construction directly affects the ability of the well or spring to protect the aquifer from contaminants. System construction scores are reduced when information shows that potential contaminants will have a more difficult time reaching the intake of the well or spring. Lower scores imply a system is less vulnerable to contamination. For example, if the well casing and annular seal both extend into a low permeability unit, then the possibility of contamination is reduced and the system construction score goes down. If the highest production interval is more than 100 feet below the water table, then the system is considered to have better buffering capacity. If the wellhead and surface seal are maintained to standards, as outlined in sanitary surveys, then contamination down the well bore is less likely. If the well is protected from surface flooding and is outside the 100-year floodplain, then contamination from surface events is reduced. For a spring source, system construction scores are related to whether the spring has been defined as a GWUDI or as ground water and whether the system intake is properly constructed.

Well #1 has a low system construction score (Table 5). The well log, the operator, and the 2000 Sanitary Survey conducted by DEQ provided the following information. The well, drilled in 1978, is 175 feet deep and has a pumping capacity of 160 gpm. The casing used is of varying thicknesses and diameters. 0.365-inch thick, 10-inch diameter casing extends to 23 feet bgs. 0.322-inch thick, 8-inch casing extends to 169 feet bgs into “sandy clay with some gravel.” The annular seal was placed to 21 feet bgs into “cemented gravel and boulders.” The static water table is located at about 85 feet bgs. Well screens were installed from 108.8 to 141.8 feet bgs and from 152.5 to 162.7 feet bgs. An 18-hour pump test was performed at the time of installation. The wellhead and surface seal are in compliance with regulations, and the well is protected from surface flooding.

Well #2 has a moderate system construction score (Table 5). The well log, the operator, and the 2000 Sanitary Survey provided the following information. The well, drilled in 1993, is 354 feet deep and has a pumping capacity of 575 gpm. 0.250-inch thick, 8-inch diameter casing extends to 334 feet bgs into "poorly cemented conglomerate". The annular seal was placed to 122 feet bgs into "conglomerate." The static water table is located at about 184 feet bgs. Well screens were installed from 270 to 320 feet bgs. A three-hour pump test was performed at the time of installation. The wellhead and surface seal are in compliance with regulations, and the well is protected from surface flooding.

The Idaho Department of Water Resources (IDWR) *Well Construction Standards Rules (1993)* require all public water systems to follow DEQ standards. IDAPA 58.01.08.550 requires that PWSs follow the *Recommended Standards for Water Works (1997)* during construction. Under current standards, all PWS wells are required to have a 50-foot buffer around the wellhead and if the well is designed to yield greater than 50 gallons per minute (gpm) a minimum of a 6-hour pump test is required. These standards are used to rate the system construction for the well by evaluating items such as condition of wellhead and surface seal, whether the casing and annular space is within consolidated material or 18 feet below the surface, the thickness of the casing, etc. If all criteria are not met, the public water source does not meet the IDWR Well Construction Standards. In this case Well #1 meets the criteria for IDWR well construction standards because the pump test, surface seal and casing thickness have met the requirements. Well #2 does not meet the criteria in the area of pump test and casing thickness.

The springs are located in the Cache National Forest and have been determined by water quality sampling to be direct source from ground water. The springs are fenced and water is taken directly from the source by a piping distribution system. The springs are chlorinated near the source before they are conveyed to the storage reservoir. These factors lead to a moderate system construction score for each of the springs.

Potential Contaminant Source and Land Use

The potential contaminant sources and land use within the delineated zones of water contribution are assessed to determine the well's susceptibility. When agriculture is the predominant land use in the area, this may increase the likelihood of agricultural wastewater infiltrating the ground water system. Agricultural land is counted as a source of leachable contaminants and points are assigned to this rating based on the percentage of agricultural land. The predominant land use within the delineated area of the Fairview Water District wells is agricultural land.

For Well #1, land use scores were high for IOCs, moderate for VOCs and SOCs, and low for microbials. For Well #2, land use scores were low for IOCs, VOCs SOCs, and for microbials. Both springs rated moderate land use for all contaminant types (Table 5). The number and location of potential contaminant sources within the delineation contributed to the scores. The potential contaminant sources found within the delineated areas include Spring Hollow Creek, Foster Creek, Cub River, and Highway 91. Others sources include USTs, septic tanks, gravel pits, dairies, LUSTs, and a WLAP site. The locations of potential contaminant sources and delineated TOT zones for the wells and springs are shown in Appendix A.

Final Susceptibility Ranking

A detection above a drinking water standard MCL at the source, any detection of a VOC or SOC, or having potential contaminant sources within 50 feet of a wellhead will automatically lead to a high susceptibility rating to the final well ranking. This ranking occurs despite the land use of the area because a pathway for contamination is shown to already exist. Hydrologic sensitivity and system construction scores are heavily weighted in the final scores. Having multiple potential contaminant sources in the 0- to 3-year time of travel zone (Zone 1B) and a large percentage of agricultural land contribute greatly to the overall ranking.

Table 5. Summary of Fairview Water District Susceptibility Evaluation

Drinking Water Source	Susceptibility Scores[1]									
	Hydrologic Sensitivity	Potential Contaminant Inventory and Land Use				System Construction	Final Susceptibility Ranking			
		IOC	VOC	SOC	Microbials		IOC	VOC	SOC	Microbials
Well #1	M	H	M	M	L	L	M	M	M	M
Well #2	M	L	L	L	L	M	M	M	M	M
Spring#1	NA	M	M	M	M	M	M	M	M	M
Spring#2	NA	M	M	M	M	M	M	M	M	M

[1]H = High Susceptibility, M = Moderate Susceptibility, L = Low Susceptibility,
IOC = inorganic chemical, VOC = volatile organic chemical, SOC = synthetic organic chemical

Susceptibility Summary

In terms of total susceptibility, Well #1 rated moderate for IOCs, VOCs, SOCs, and microbials. The system construction score was low and the hydrologic sensitivity score was moderate. Potential contaminant inventory and land use scores were high for IOCs, moderate for VOCs and SOCs, and low for microbials. The IOCs arsenic, fluoride, and nitrate have been detected in the well, although the reported concentrations of these chemicals were below the MCL for each chemical. In December 1998, arsenic was detected in the drinking water at a concentration of 6 µg/L, which at that time was below the MCL of 50 µg/L. In October 2001, the EPA lowered the arsenic MCL to 10 µg/L, giving systems until 2006 to comply with the new standard. No VOCs or SOCs have been detected in the well.

Well # 2 rated moderate for IOCs, VOCs, SOCs, and microbials. The system construction score and hydrologic sensitivity score were moderate. Potential contaminant inventory and land use scores were low for IOCs, VOCs, SOCs, and for microbials. The IOCs arsenic, chromium, copper, fluoride, and nitrate have been detected in the well, although the reported concentrations of these chemicals were below the MCL for each chemical. In December 1993, arsenic was detected in the drinking water at a concentration of 8.7 µg/L.

Spring #1 Big and Spring #2 Little rated moderate for IOCs, VOCs, SOCs, and microbials. The system construction scores were moderate. Potential contaminant inventory and land use scores were moderate for IOCs, VOCs SOCs, and for microbials.

Section 4. Options for Drinking Water Protection

This assessment should be used as a basis for determining appropriate new protection measures or re-evaluating existing protection efforts. No matter what ranking a source receives, protection is always important. Whether the source is currently located in a “pristine” area or an area with numerous industrial and/or agricultural land uses that require surveillance, the way to ensure good water quality in the future is to act now to protect valuable water supply resources. If the system should need to expand in the future, new well sites should be located in areas with as few potential sources of contamination as possible, and the site should be reserved and protected for this specific use.

An effective drinking water protection program is tailored to the particular local drinking water protection area. A community with a fully developed source water protection program will incorporate many strategies. For the Fairview Water District, drinking water protection activities should first focus on correcting any deficiencies outlined in the sanitary survey. No potential contaminants (pesticides, paint, fuel, cleaning supplies, etc.) should be stored or applied within 50 feet of the wells. Land uses within most of the source water assessment area are outside the direct jurisdiction of the Fairview Water District, making collaboration and partnerships with state and local agencies, industrial and commercial groups should be established to ensure future land uses are protective of ground water quality.

Due to the time involved with the movement of ground water, drinking water protection activities should be aimed at long-term management strategies even though these strategies may not yield results in the near term. A strong public education program should be a primary focus of any drinking water protection plan. There are multiple resources available to help communities implement protection programs, including the Drinking Water Academy of the U.S. EPA. Drinking water protection activities for agriculture should be coordinated with the Idaho State Department of Agriculture, and the Franklin Soil and Water Conservation District, and the Natural Resources Conservation Service.

A system must incorporate a variety of strategies in order to develop a comprehensive drinking water protection plan, be they regulatory in nature (i.e. zoning, permitting) or non-regulatory in nature (i.e. good housekeeping, public education, specific best management practices). For assistance in developing protection strategies please contact the Pocatello Regional Office of the DEQ or the Idaho Rural Water Association.

Assistance

Public water supplies and others may call the following DEQ offices with questions about this assessment and to request assistance with developing and implementing a local protection plan. In addition, draft protection plans may be submitted to the DEQ office for preliminary review and comments.

Pocatello Regional DEQ Office (208) 236-6160

State DEQ Office (208) 373-0502

Website: http://www.deq.state.id.us

Water suppliers serving fewer than 10,000 persons may contact Ms. Melinda Harper, Idaho Rural Water Association, at 208-343-7001 (mlharper@velocitus.net) for assistance with drinking water protection (formerly wellhead protection) strategies.

POTENTIAL CONTAMINANT INVENTORY LIST OF ACRONYMS AND DEFINITIONS

AST (Aboveground Storage Tanks) – Sites with aboveground storage tanks.

Business Mailing List – This list contains potential contaminant sites identified through a yellow pages database search of standard industry codes (SIC).

CERCLIS – This includes sites considered for listing under the **Comprehensive Environmental Response Compensation and Liability Act (CERCLA)**. CERCLA, more commonly known as ASuperfund≅ is designed to clean up hazardous waste sites that are on the national priority list (NPL).

Cyanide Site – DEQ permitted and known historical sites/facilities using cyanide.

Dairy – Sites included in the primary contaminant source inventory represent those facilities regulated by Idaho State Department of Agriculture (ISDA) and may range from a few head to several thousand head of milking cows.

Deep Injection Well – Injection wells regulated under the Idaho Department of Water Resources generally for the disposal of stormwater runoff or agricultural field drainage.

Enhanced Inventory – Enhanced inventory locations are potential contaminant source sites added by the water system. These can include new sites not captured during the primary contaminant inventory, or corrected locations for sites not properly located during the primary contaminant inventory. Enhanced inventory sites can also include miscellaneous sites added by the Idaho Department of Environmental Quality (DEQ) during the primary contaminant inventory.

Floodplain – This is a coverage of the 100year floodplains.

Group 1 Sites – These are sites that show elevated levels of contaminants and are not within the priority one areas.

Inorganic Priority Area – Priority one areas where greater than 25% of the wells/springs show constituents higher than primary standards or other health standards.

Landfill – Areas of open and closed municipal and non-municipal landfills.

LUST (Leaking Underground Storage Tank) – Potential contaminant source sites associated with leaking underground storage tanks as regulated under RCRA.

Mines and Quarries – Mines and quarries permitted through the Idaho Department of Lands.)

Nitrate Priority Area – Area where greater than 25% of wells/springs show nitrate values above 5 mg/l.

NPDES (National Pollutant Discharge Elimination System) – Sites with NPDES permits. The Clean Water Act requires that any discharge of a pollutant to waters of the United States from a point source must be authorized by an NPDES permit.

Organic Priority Areas – These are any areas where greater than 25% of wells/springs show levels greater than 1% of the primary standard or other health standards.

Recharge Point – This includes active, proposed, and possible recharge sites on the Snake River Plain.

RCRA – Site regulated under **Resource Conservation Recovery Act (RCRA)**. RCRA is commonly associated with the cradle to grave management approach for generation, storage, and disposal of hazardous wastes.

SARA Tier II (Superfund Amendments and Reauthorization Act Tier II Facilities) – These sites store certain types and amounts of hazardous materials and must be identified under the Community Right to Know Act.

Toxic Release Inventory (TRI) – The toxic release inventory list was developed as part of the Emergency Planning and Community Right to Know (Community Right to Know) Act passed in 1986. The Community Right to Know Act requires the reporting of any release of a chemical found on the TRI list.

UST (Underground Storage Tank) – Potential contaminant source sites associated with underground storage tanks regulated as regulated under RCRA.

Wastewater Land Applications Sites – These are areas where the land application of municipal or industrial wastewater is permitted by DEQ.

Wellheads – These are drinking water well locations regulated under the Safe Drinking Water Act. They are not treated as potential contaminant sources.

NOTE: Many of the potential contaminant sources were located using a geocoding program where mailing addresses are used to locate a facility. Field verification of potential contaminant sources is an important element of an enhanced inventory.

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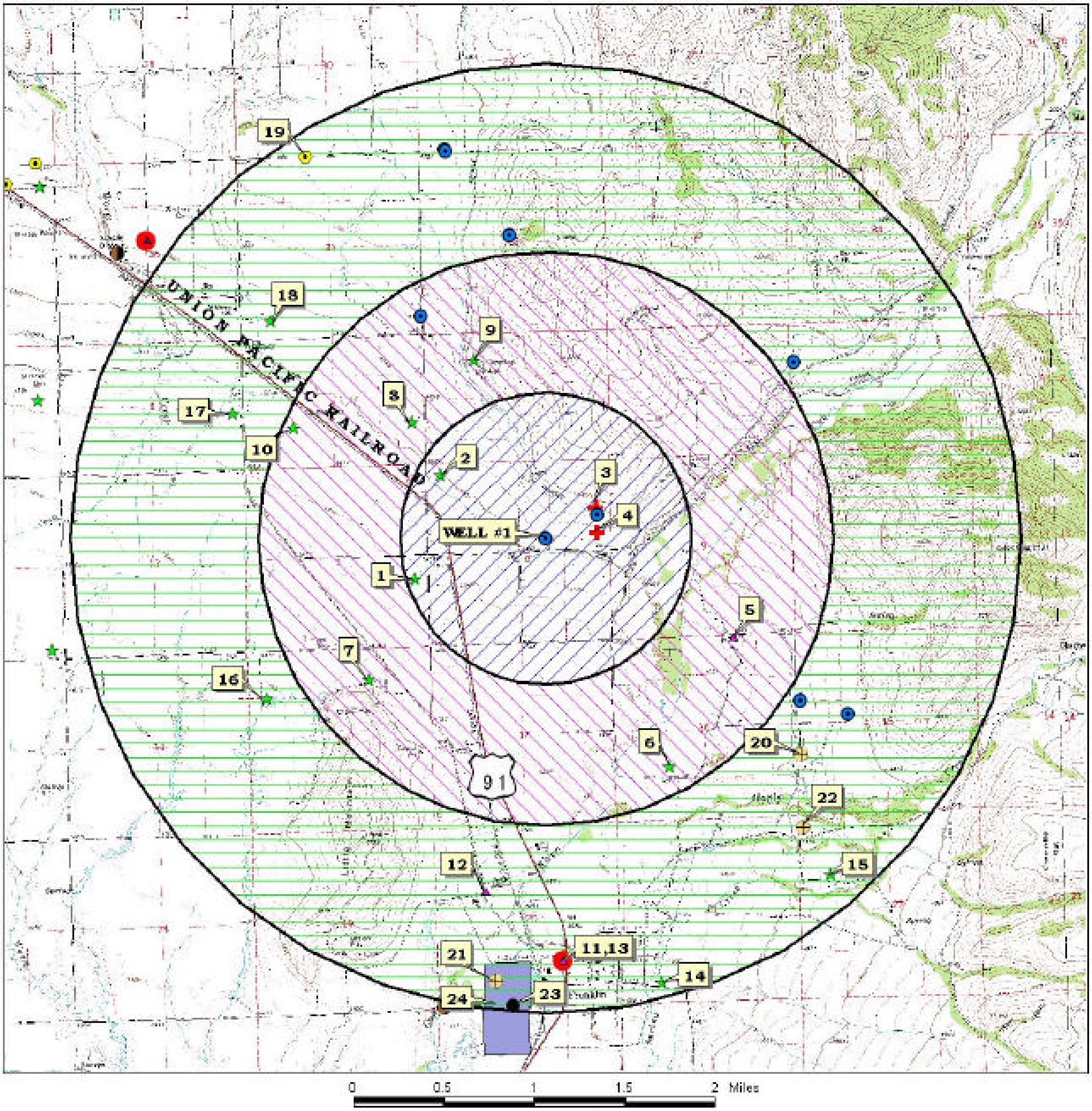
Appendix A

Fairview Water District
Delineation Maps & Potential Contaminant Inventories

FIGURE 2. Fairview Water District Delineation Map and Potential Contaminant Source Locations



PWS# 6210006
WELL #1

Table 1. Fairview Water District, Well #1, Potential Contaminant Inventory

Site #	Source Description	TOT Zone[1] (years)	Source of Information	Potential Contaminants[2]
1	Dairy	0-3	Database Inventory	IOC, VOC, SOC, Microbial
2	Dairy	0-3	Database Inventory	IOC, VOC, SOC, Microbial
3	Gravel Pit	0-3	Enhanced Inventory	IOC, VOC, SOC
4	Septic Tanks	0-3	Enhanced Inventory	IOC, Microbial
5	Farm; UST	3-6	Database Inventory	VOC, SOC
6	Dairy	3-6	Database Inventory	IOC, VOC, SOC
7	Former Dairy	3-6	Database Inventory	IOC, VOC, SOC
8	Former Dairy	3-6	Database Inventory	IOC, VOC, SOC
9	Former Dairy	3-6	Database Inventory	IOC, VOC, SOC
10	Former Dairy	3-6	Database Inventory	IOC, VOC, SOC
11	Lust Site	6-10	Database Inventory	VOC, SOC
12	Dairy; UST	6-10	Database Inventory	IOC, VOC, SOC
13	Gas Station; UST	6-10	Database Inventory	VOC, SOC
14	Dairy	6-10	Database Inventory	IOC, VOC, SOC
15	Dairy	6-10	Database Inventory	IOC, VOC, SOC
16	Dairy	6-10	Database Inventory	IOC, VOC, SOC
17	Dairy	6-10	Database Inventory	IOC, VOC, SOC
18	Dairy	6-10	Database Inventory	IOC, VOC, SOC
19	Painting Contractors	6-10	Database Inventory	IOC, VOC, SOC
20	Cercla Site	6-10	Database Inventory	VOC, SOC
21	Cercla Site	6-10	Database Inventory	VOC, SOC
22	Cercla Site	6-10	Database Inventory	IOC, VOC, SOC
23	Group 1	6-10	Database Inventory	
24	WLAP Site	6-10	Database Inventory	IOC, SOC
	Maple Creek			
	Cub River			
	Cub River Road			
	Railroad	0-10	GIS Map	IOC, VOC, SOC, Microbial
	Highway 91	0-10	GIS Map	IOC, VOC, SOC, Microbial

[1] TOT = time-of-travel (in years) for a potential contaminant to reach the wellhead
[2] IOC = inorganic chemical, VOC = volatile organic chemical, SOC = synthetic organic chemical

Table 2. Fairview Water District, Well #2, Potential Contaminant Inventory

Site #	Source Description	TOT Zone[1] (years)	Source of Information	Potential Contaminants[2]
1	Gravel Pit	0-3	Enhanced Inventory	IOC,VOC, SOC
2	Septic Tanks	0-3	Enhanced Inventory	IOC,VOC, SOC, Microbial
	Irrigation Ditch	0-3	GIS Map	IOC, VOC, SOC, Microbial
	Irrigation Ditch	3-6	GIS Map	IOC, VOC, SOC

[1] TOT = time-of-travel (in years) for a potential contaminant to reach the wellhead
[2] IOC = inorganic chemical, VOC = volatile organic chemical, SOC = synthetic organic chemical

FIGURE 3. Fairview Water District Delineation Map and Potential Contaminant Source Locations

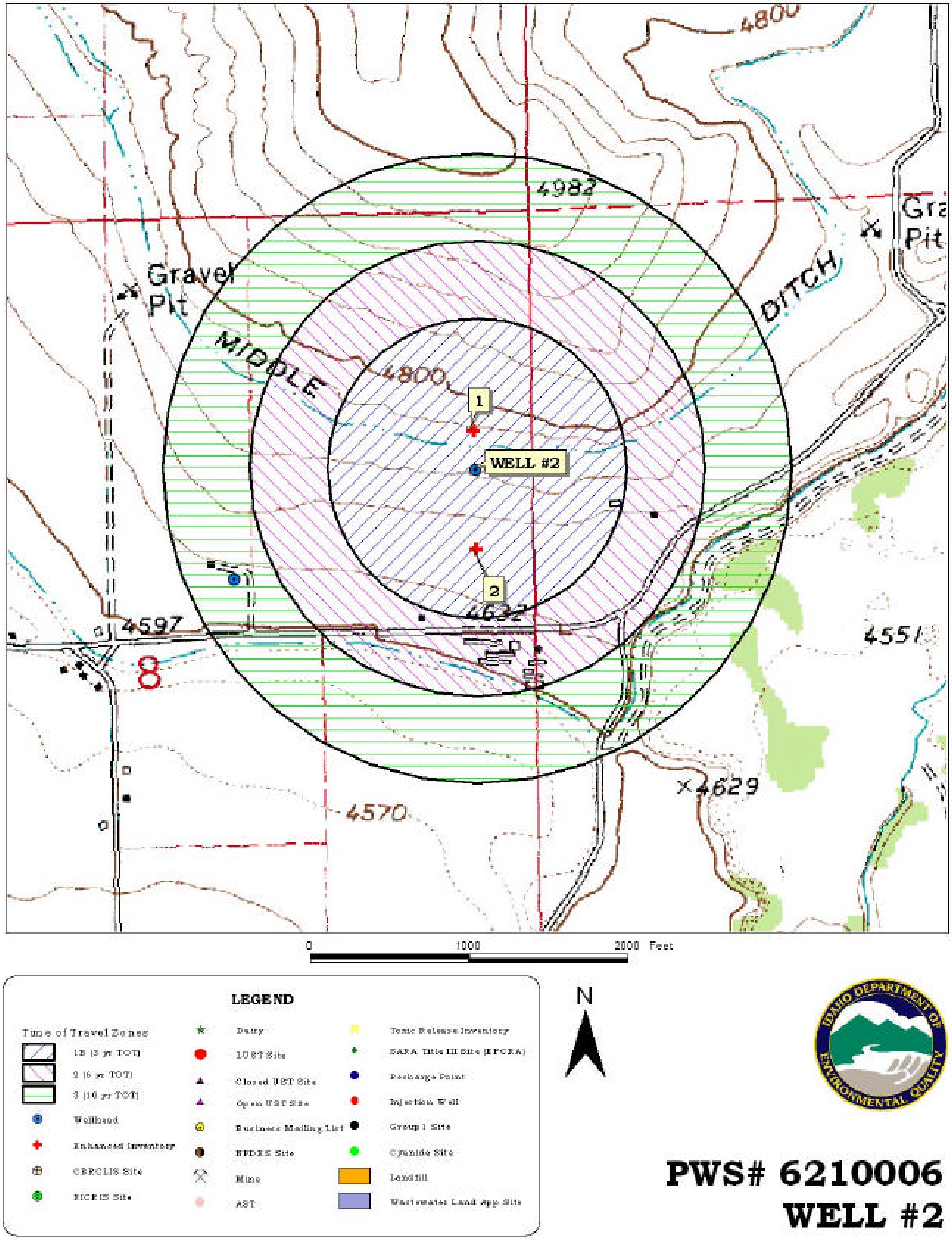
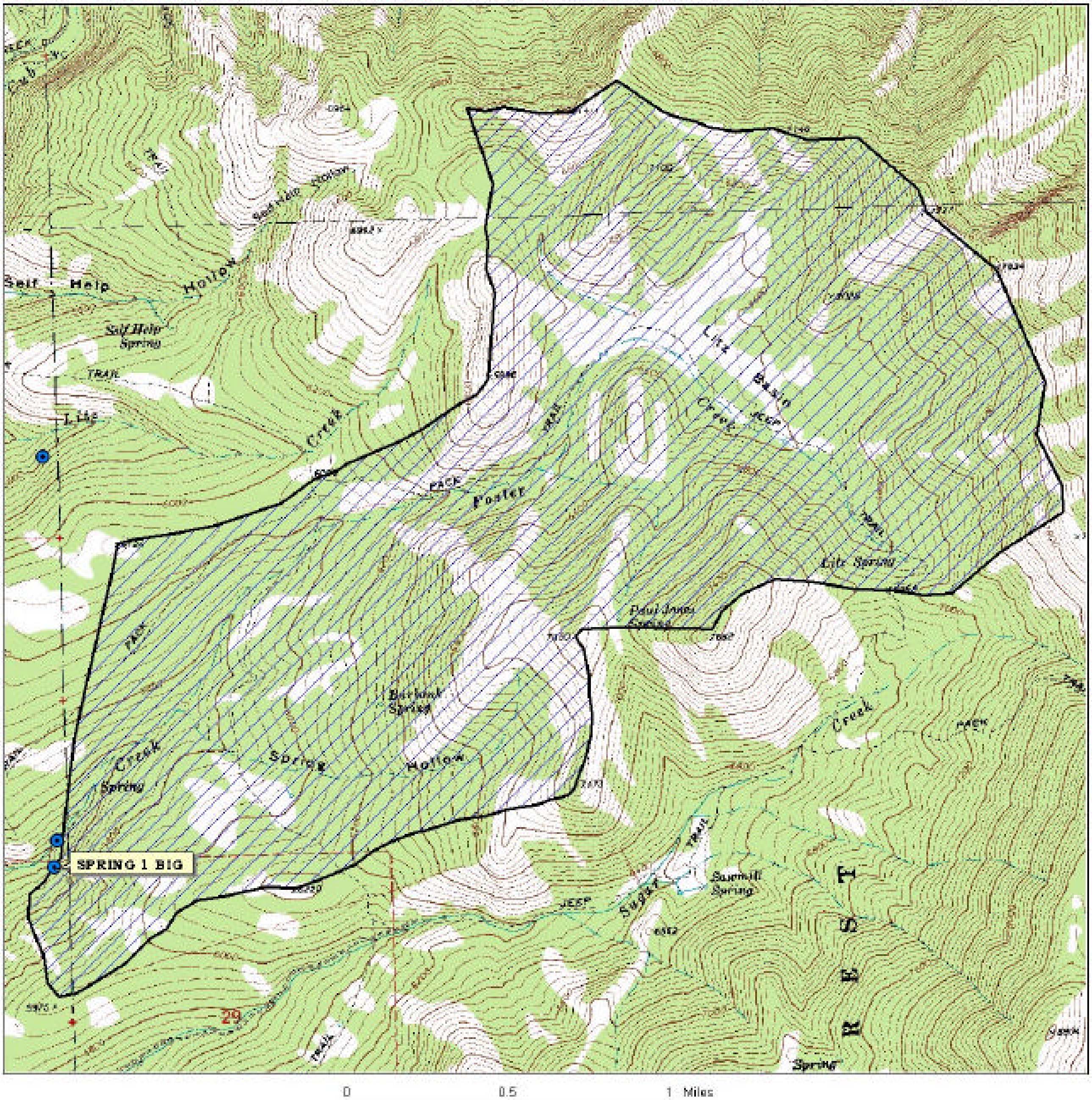


FIGURE 4. Fairview Water District Delineation Map and Potential Contaminant Source Locations



PWS# 6210006
SPRING 1 BIG

FIGURE 5. Fairview Water District Delineation Map and Potential Contaminant Source Locations

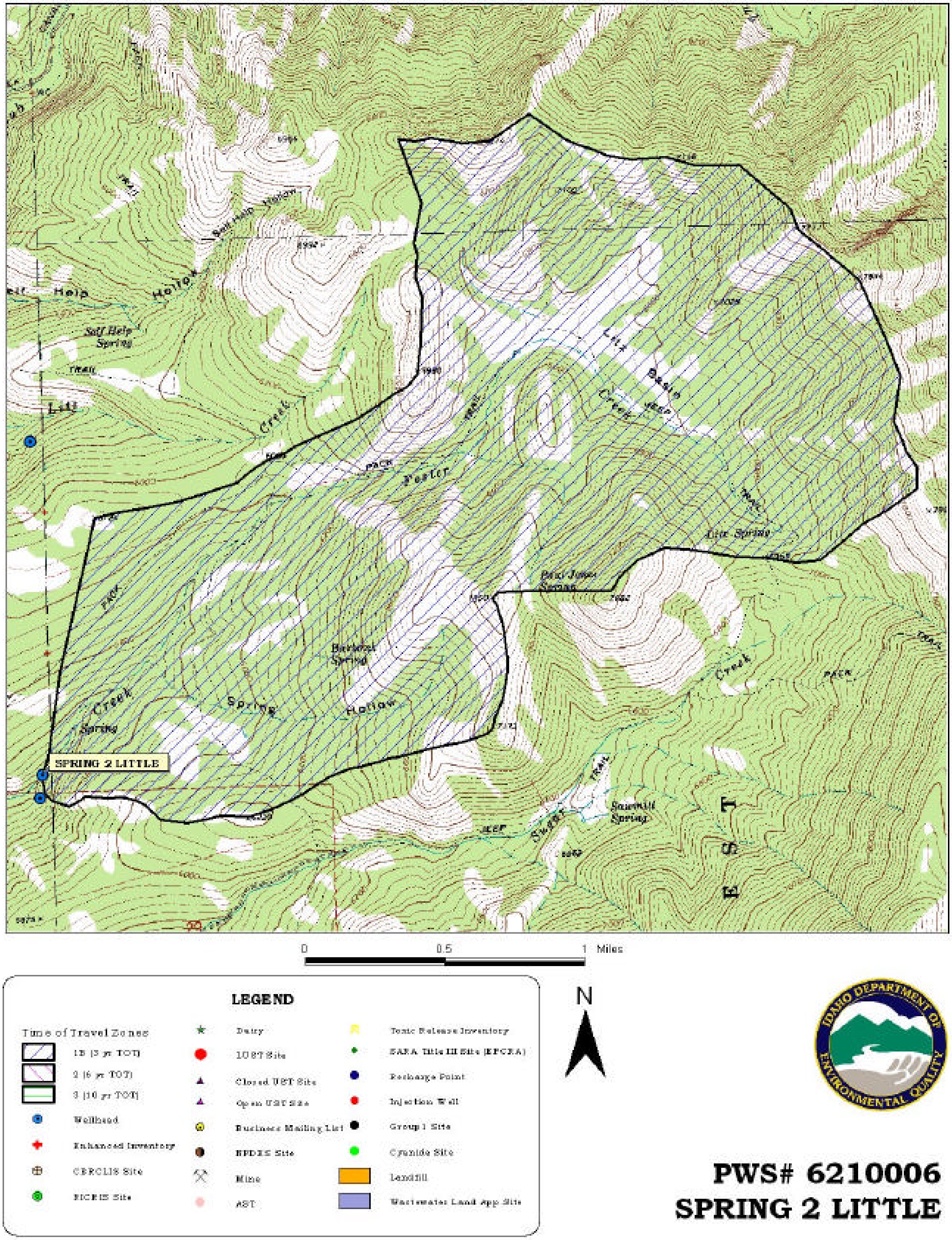


Table 3. Fairview Water District, Spring 1 Big, Potential Contaminant Inventory

Site #	Source Description	TOT Zone[1] (years)	Source of Information	Potential Contaminants[2]
	Foster Creek	0-3	GIS Map	IOC,VOC, SOC, Microbial
	Spring Hollow Creek	0-3	GIS Map	IOC,VOC, SOC, Microbial

[1] TOT = time-of-travel (in years) for a potential contaminant to reach the wellhead

[2] IOC = inorganic chemical, VOC = volatile organic chemical, SOC = synthetic organic chemical

Table 4. Fairview Water District, Spring 2 Little, Potential Contaminant Inventory

Site #	Source Description	TOT Zone[1] (years)	Source of Information	Potential Contaminants[2]
	Foster Creek	0-3	GIS Map	IOC,VOC, SOC, Microbial
	Spring Hollow Creek	0-3	GIS Map	IOC,VOC, SOC, Microbial

[1] TOT = time-of-travel (in years) for a potential contaminant to reach the wellhead

[2] IOC = inorganic chemical, VOC = volatile organic chemical, SOC = synthetic organic chemical

Appendix B

Fairview Water District
Susceptibility Analysis Worksheets

The final scores for the well susceptibility analysis were determined using the following formulas:

1) VOC/SOC/IOC Final Score = Hydrologic Sensitivity + System Construction + (Potential Contaminant/Land Use x 0.2)

2) Microbial Final Score = Hydrologic Sensitivity + System Construction + (Potential Contaminant/Land Use x 0.375)

Final Susceptibility Scoring:

0 - 5 Low Susceptibility

6 - 12 Moderate Susceptibility

≥ 13 High Susceptibility

The final scores for the spring susceptibility analysis were determined using the following formulas:

1) VOC/SOC/IOC Final Score = System Construction + (Potential Contaminant/Land Use x 0.818)

2) Microbial Final Score = Hydrologic Sensitivity + System Construction + (Potential Contaminant/Land Use x 1.125)

Final Susceptibility Scoring:

0 - 7 Low Susceptibility

8 - 15 Moderate Susceptibility

≥ 16 High Susceptibility

1. System Construction		SCORE			
Drill Date	4/13/78				
Driller Log Available	YES				
Sanitary Survey (if yes, indicate date of last survey)	YES	2000			
Well meets IDWR construction standards	YES	0			
Wellhead and surface seal maintained	YES	0			
Casing and annular seal extend to low permeability unit	YES	0			
Highest production 100 feet below static water level	NO	1			
Well located outside the 100 year flood plain	YES	0			
Total System Construction Score		1			
2. Hydrologic Sensitivity					
Soils are poorly to moderately drained	YES	0			
Vadose zone composed of gravel, fractured rock or unknown	NO	0			
Depth to first water > 300 feet	NO	1			
Aquitard present with > 50 feet cumulative thickness	NO	2			
Total Hydrologic Score		3			
3. Potential Contaminant / Land Use - ZONE 1A		IOC Score	VOC Score	SOC Score	Microbial Score
Land Use Zone 1A	DRYLAND AGRICULTURE	1	1	1	1
Farm chemical use high	NO	0	0	0	
IOC, VOC, SOC, or Microbial sources in Zone 1A	NO	NO	NO	NO	NO
Total Potential Contaminant Source/Land Use Score - Zone 1A		1	1	1	1
Potential Contaminant / Land Use - ZONE 1B					
Contaminant sources present (Number of Sources)	YES	4	3	3	3
(Score = # Sources X 2) 8 Points Maximum		8	6	6	6
Sources of Class II or III leacheable contaminants or	YES	2	2	2	
4 Points Maximum		2	2	2	
Zone 1B contains or intercepts a Group 1 Area	YES	2	0	0	0
Land use Zone 1B	Greater Than 50% Non-Irrigated Agricultural	2	2	2	2
Total Potential Contaminant Source / Land Use Score - Zone 1B		14	10	10	8
Potential Contaminant / Land Use - ZONE II					
Contaminant Sources Present	YES	2	2	2	
Sources of Class II or III leacheable contaminants or	YES	1	1	1	
Land Use Zone II	Greater Than 50% Non-Irrigated Agricultural	1	1	1	
Potential Contaminant Source / Land Use Score - Zone II		4	4	4	0
Potential Contaminant / Land Use - ZONE III					
Contaminant Source Present	YES	1	1	1	
Sources of Class II or III leacheable contaminants or	YES	1	1	1	
Is there irrigated agricultural lands that occupy > 50% of	NO	0	0	0	
Total Potential Contaminant Source / Land Use Score - Zone III		2	2	2	0
Cumulative Potential Contaminant / Land Use Score		21	17	17	9

4. Final Susceptibility Source Score	8	7	7	7
5. Final Well Ranking	Moderate	Moderate	Moderate	Moderate

1. System Construction		SCORE
Drill Date	10/29/93	
Driller Log Available	YES	
Sanitary Survey (if yes, indicate date of last survey)	YES	0
Well meets IDWR construction standards	NO	1
Wellhead and surface seal maintained	YES	0
Casing and annular seal extend to low permeability unit	YES	0
Highest production 100 feet below static water level	NO	1
Well located outside the 100 year flood plain	YES	0
	Total System Construction Score	2

2. Hydrologic Sensitivity		
Soils are poorly to moderately drained	YES	0
Vadose zone composed of gravel, fractured rock or unknown	YES	1
Depth to first water > 300 feet	NO	1
Aquitard present with > 50 feet cumulative thickness	NO	2
	Total Hydrologic Score	4

3. Potential Contaminant / Land Use - ZONE 1A		IOC Score	VOC Score	SOC Score	Microbial Score
Land Use Zone 1A	DRYLAND AGRICULTURE	1	1	1	1
Farm chemical use high	NO	0	0	0	
IOC, VOC, SOC, or Microbial sources in Zone 1A	NO	NO	NO	NO	NO
	Total Potential Contaminant Source/Land Use Score - Zone 1A	1	1	1	1
Potential Contaminant / Land Use - ZONE 1B					
Contaminant sources present (Number of Sources)	YES	2	2	2	1
(Score = # Sources X 2) 8 Points Maximum		4	4	4	2
Sources of Class II or III leacheable contaminants or	NO	0	0	0	
4 Points Maximum		0	0	0	
Zone 1B contains or intercepts a Group 1 Area	NO	0	0	0	0
Land use Zone 1B	Greater Than 50% Non-Irrigated Agricultural	2	2	2	2
	Total Potential Contaminant Source / Land Use Score - Zone 1B	6	6	6	4
Potential Contaminant / Land Use - ZONE II					
Contaminant Sources Present	NO	0	0	0	
Sources of Class II or III leacheable contaminants or	NO	0	0	0	
Land Use Zone II	Greater Than 50% Non-Irrigated Agricultural	1	1	1	
	Potential Contaminant Source / Land Use Score - Zone II	1	1	1	0
Potential Contaminant / Land Use - ZONE III					
Contaminant Source Present	NO	0	0	0	
Sources of Class II or III leacheable contaminants or	NO	0	0	0	
Is there irrigated agricultural lands that occupy > 50% of	YES	1	1	1	
	Total Potential Contaminant Source / Land Use Score - Zone III	1	1	1	0
Cumulative Potential Contaminant / Land Use Score		9	9	9	5

4. Final Susceptibility Source Score	8	8	8	8
5. Final Well Ranking	Moderate	Moderate	Moderate	Moderate

1. System Construction		SCORE
Intake structure properly constructed	YES	0
Is the spring under the direct influence of Surface Water	NO	2
Total System Construction Score		2

2. Potential Contaminant / Land Use - ZONE 1A		IOC Score	VOC Score	SOC Score	Microbial Score
Land Use Zone 1A	RANGELAND, WOODLAND, BASALT	0	0	0	0
Farm chemical use high	NO	0	0	0	
IOC, VOC, SOC, or Microbial sources in Zone 1A	NO	NO	NO	NO	NO
Total Potential Contaminant Source/Land Use Score - Zone 1A		0	0	0	0
Potential Contaminant / Land Use - ZONE 1B					
Contaminant sources present (Number of Sources)	YES	2	2	2	2
(Score = # Sources X 2) 8 Points Maximum		4	4	4	4
Sources of Class II or III leacheable contaminants or	YES	6	2	2	
4 Points Maximum		4	2	2	
Zone 1B contains or intercepts a Group 1 Area	NO	0	0	0	0
Land use Zone 1B	Greater Than 50% Non-Irrigated Agricultural	2	2	2	2
Total Potential Contaminant Source / Land Use Score - Zone 1B		10	8	8	6
Cumulative Potential Contaminant / Land Use Score		10	8	8	6
4. Final Susceptibility Source Score		10	9	9	9
5. Final Well Ranking		Moderate	Moderate	Moderate	Moderate

Ground Water Susceptibility Report   Public Water System Name: FAIRVIEW WATER DISTRICT   Public Water System Number 6210006:   SPRING 2 LITTLE

1. System Construction		SCORE
Intake structure properly constructed	YES	0
Is the spring under the direct influence of Surface Water	NO	2
Total System Construction Score		2

2. Potential Contaminant / Land Use - ZONE 1A		IOC Score	VOC Score	SOC Score	Microbial Score
Land Use Zone 1A	RANGELAND, WOODLAND, BASALT	0	0	0	0
Farm chemical use high	NO	0	0	0	
IOC, VOC, SOC, or Microbial sources in Zone 1A	NO	NO	NO	NO	NO
Total Potential Contaminant Source/Land Use Score - Zone 1A		0	0	0	0
Potential Contaminant / Land Use - ZONE 1B					
Contaminant sources present (Number of Sources)	YES	2	2	2	2
(Score = # Sources X 2) 8 Points Maximum		4	4	4	4
Sources of Class II or III leacheable contaminants or	YES	6	2	2	
4 Points Maximum		4	2	2	
Zone 1B contains or intercepts a Group 1 Area	NO	0	0	0	0
Land use Zone 1B	Greater Than 50% Non-Irrigated Agricultural	2	2	2	2
Total Potential Contaminant Source / Land Use Score - Zone 1B		10	8	8	6
Cumulative Potential Contaminant / Land Use Score		10	8	8	6
4. Final Susceptibility Source Score		10	9	9	9
5. Final Well Ranking		Moderate	Moderate	Moderate	Moderate